

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

United States Department of Transportation --
Publications & Papers

U.S. Department of Transportation

2002

Revised method for reviewing Human Factors in the design of CCR`S

Adam Balfour

Human Factors Solutions

Follow this and additional works at: <https://digitalcommons.unl.edu/usdot>



Part of the [Civil and Environmental Engineering Commons](#)

Balfour, Adam, "Revised method for reviewing Human Factors in the design of CCR`S" (2002). *United States Department of Transportation -- Publications & Papers*. 26.
<https://digitalcommons.unl.edu/usdot/26>

This Article is brought to you for free and open access by the U.S. Department of Transportation at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in United States Department of Transportation -- Publications & Papers by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.



Revised method for reviewing Human Factors in the design of CCR`S

Adam Balfour

Human Factors Solutions - Norway

Human Factors Solutions - Norway

Idea
ABB – NPD – Safetec

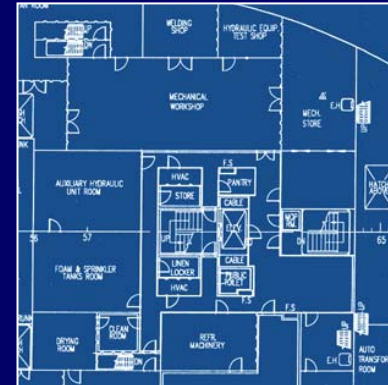
Concept
Super Eva – Kristin

Detailed
Grane – Balder – West Future II

Operation
Jotun A

Modification
Eldfisk – Petrojarl – MMI-2

V & V
Kristin – Kvitebjørn – Oseberg C





ABBREVIATIONS

MMI-1

"A method for reviewing Human Factors in Control Centre Design",
NPD June 2000.

MMI-2

Revision of "A method for reviewing Human Factors in Control Centre Design", NPD October 2002



HFW 2002 GOALS

- MMI-2 - October 2002
- Share experience - MMI -1
- Gain YOUR experience - reviewing HF in CCR design



AGENDA

MMI-1

Background

Goals

Preliminary results

MMI-2

Goals

Project plan

Preliminary requirements

Preliminary Concepts

ISSUES

1. _____

2. _____

3. _____

MMI-1

BACKGROUND MMI -1 - NPD - AUDITS

- Too many alarms
- New functions in CCR
- Increased complexity and demand on staff
- New technology challenges established safety philosophy
- Reduced manning in CCR
- Remote control - onshore

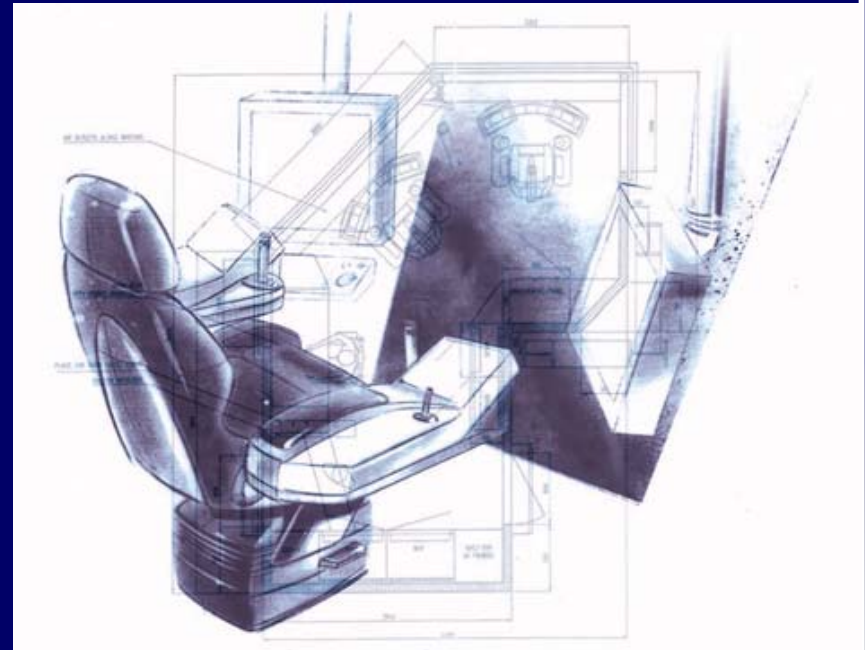


Illustration: Courtesy of Maritime Hydraulics, Norway

Consoles

- Space for paper, pens
- Location - contrast
- Large fixed keyboards
- Not adjustable



Alarm systems

- No philosophy
- Alarm list
- Too many
- Inconsistent
- No priority
- No grouping
- Incomprehensible

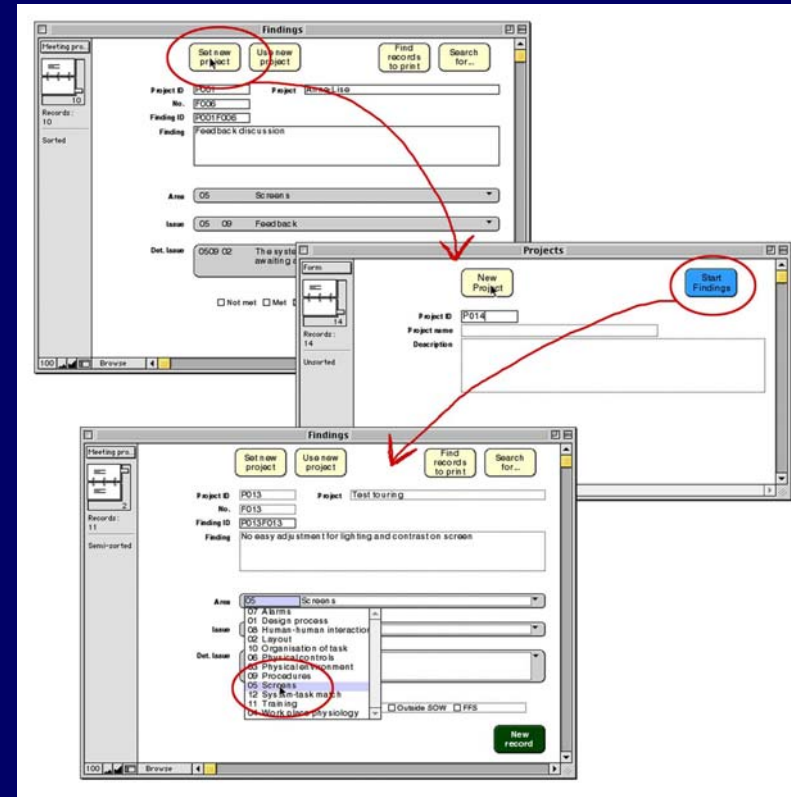
Alarm Presentasjon

~~| | | |
|----------|--------|------|
| Alarm 1 | 937848 | 0000 |
| Alarm 2 | 938848 | 0000 |
| Alarm 3 | 924848 | 0000 |
| Alarm 4 | 937658 | 0000 |
| Alarm 5 | 937148 | 0000 |
| Alarm 6 | 937068 | 0000 |
| Alarm 7 | 937848 | 0000 |
| Alarm 8 | 932748 | 0000 |
| Alarm 9 | 832848 | 0000 |
| Alarm 10 | 937838 | 0000 |
| Alarm 11 | 933788 | 0000 |
| Alarm 12 | 932468 | 0000 |~~

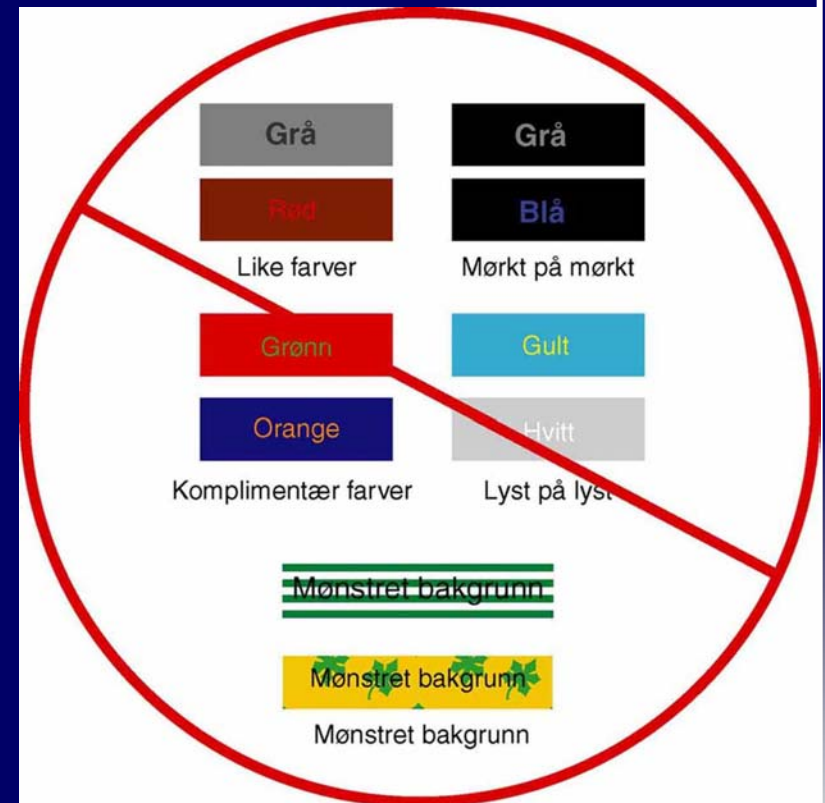
Alarm 1	937848	0000
Alarm 2	938848	0000
Alarm 3	924848	0000
Alarm 4	937658	0000
Alarm 5	937148	0000
Alarm 6	937068	0000
Alarm 7	937848	0000
Alarm 8	932748	0000
Alarm 9	832848	0000
Alarm 10	937838	0000
Alarm 11	933788	0000
Alarm 12	932468	0000

Navigation

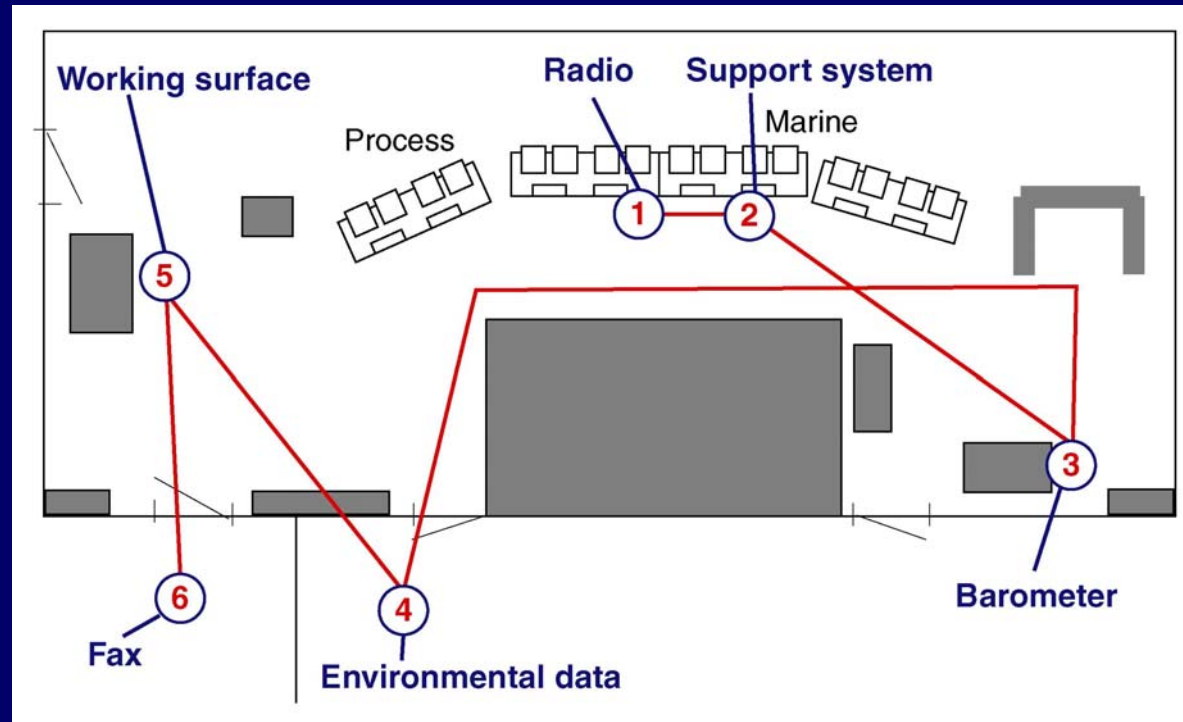
- Inconsistent
- Difficult - hierarchical
- Remember screen nr.
- Limited search functions



Colour /graphics



CCR Layout

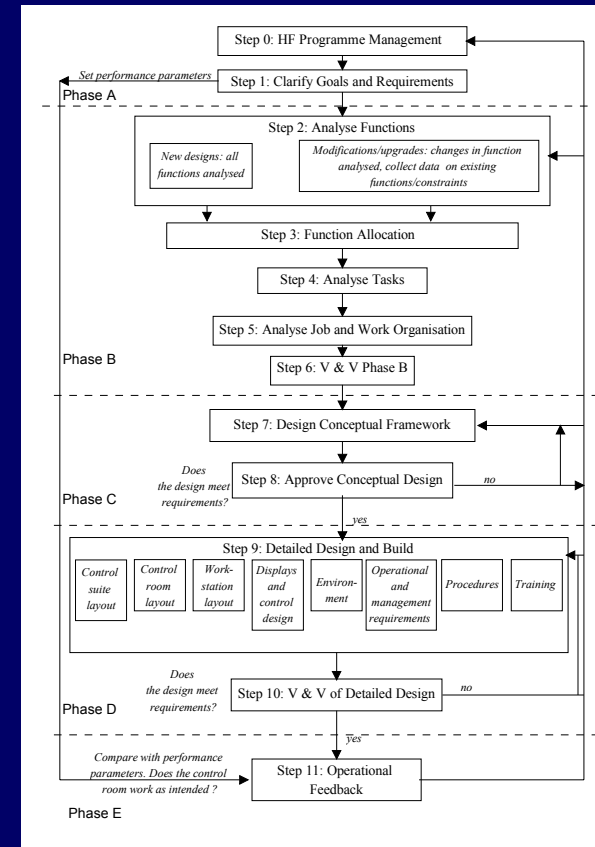


GOALS MMI-1

Goals :	Provide NPD & industry with common basis for: <ul style="list-style-type: none">- safe working practices in CCR- acceptable total workload in CCR- reduction - human error- structured HF methods- evaluation of solutions vs regulations
Product:	Systematic CCR audit tool (design - mod -incidents)
Users & Use:	Authority- revision, incidents Industry - management, planing, development revision, updates, modification
Based on:	ISO 11064 structure and requirements

MMI 1 = ISO 11064 +

- Introduction
- Information sources
- Review guidance
- Audit questions
- 167 pages in English



MMI-2

GOALS MMI-2

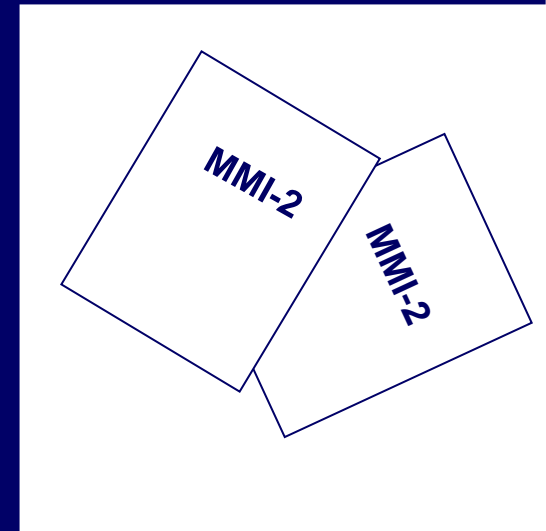
As for MMI -1

Revise and update, simplify and improve



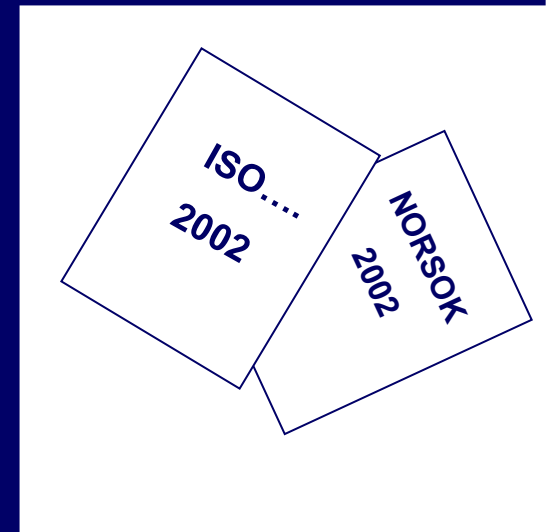
DELIVERABLES MMI-2

1. Revision - Norwegian and English
2. Presentation material - MMI-2
3. Project plan - other cabins



PROJECT PLAN MMI-2

1. Clarify goals, requirements and specification
2. Interview stakeholders
3. Observe use/audit of MMI-1
4. Test use of MMI-1
5. Review alternative methods, standards etc.
6. Develop and test concepts
7.
 - Develop MMI-2
 - Presentation material
 - Project plan for other cabins



PRELIMINARY RESULTS - MMI 1

+

Systematic / useful

Professional content

Checklists useful

Puts HF on map

--

Not easy to use / Too large

Where to start ?

Iterative process unclear

Not related to oil industry

No change - human error



PRELIMINARY REQUIREMENTS 1/2

TECHNICAL CONTENTS

- Reduce volume - BUT more examples, checklists, guidance !
- Simplify / userfriendly - navigation
- Process vs results based ?
- Audit tool / design guide ?
- Add Human Error Assessment, HCI, Alarm Philosophy, +++
- MMI-2 - tool to get 1 answer from 10 different operators

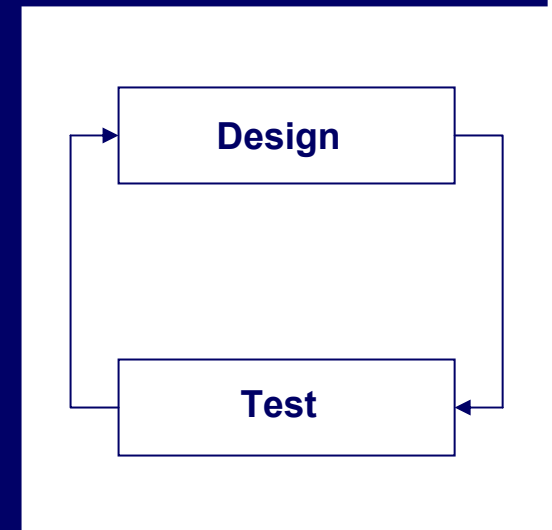
PRELIMINARY REQUIREMENTS 2/2

ORGANISATION

- Experience transfer first
- Merge chapters
- Emphasize iteration
- Seperate parts: Users

INTRODUCTION MMI-2

- Involve industry: (Ref. group)
- Overview & detailed workshops

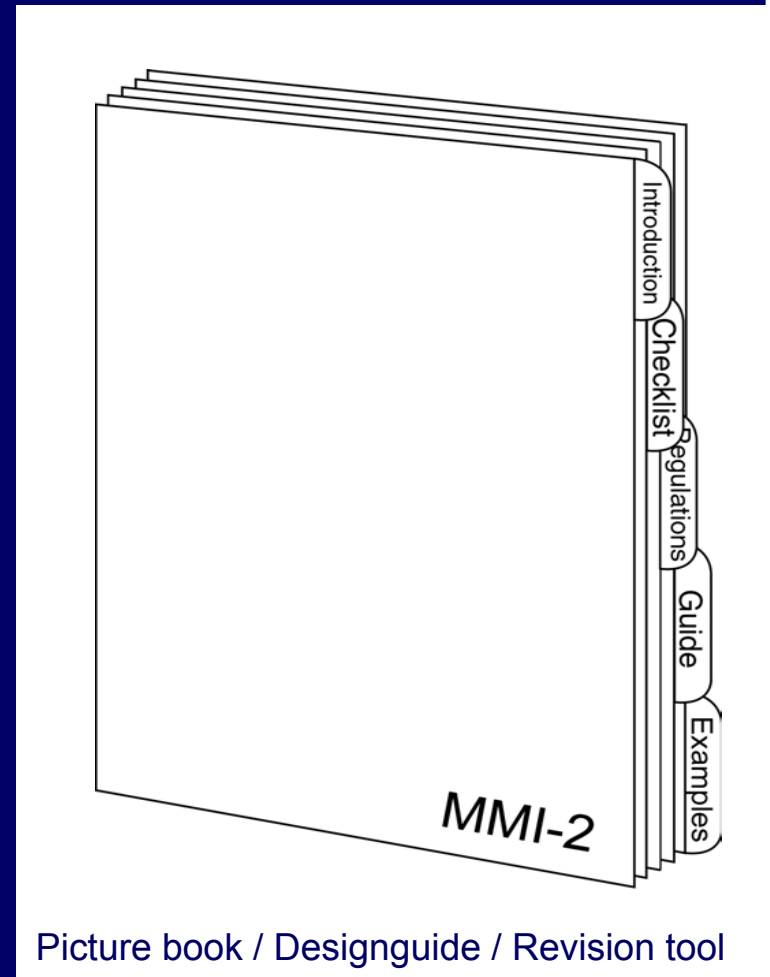


PRELIMINARY CONCEPTS

ORGANISATION

- Requirements
- Regulations
- Topic
- Design process
- Users
- Examples

Combinations Etc.



DATABASE

CHECKLIST	GUIDE	REGULATIONS	EXAMPLES
<p>1. Was a system developed that can assure the CCR operators are updated concerning relevant regulations and standards?</p>	<p><input checked="" type="checkbox"/> Documented</p> <p><input type="checkbox"/> Unknown</p> <p><input type="checkbox"/> Not documented</p>		

● SHALL

● SHOULD

● MAY

● CAN

ISSUES

- Who should "own" HF / MMI -2 ?
- How should HF requirements be presented?
(process, performance criteria, detailed specs.)
- Your experience with ISO 11064 ?
- Your experience reviewing Human Factors in CCR
design process?

